and

(3) subjecting said vegetable protein material to enzymatic hydrolysis with said fungal culture first at a temperature ranging from 15 °C to 39 °C with aeration and agitation and then at a temperature ranging from 40 °C to 60 °C,

to obtain said hydrolyzed protein,

wherein a ratio of reducing sugars present in said hydrolyzed protein obtained is 5 % by weight or less based on the total solid content in said hydrolyzed protein.

The inventors have discovered that the presently claimed methods are particularly effective for producing a protein hydrolyzate which is not browned and which resists browning for a prolonged period of time.

The cited references contain no disclosure which would suggest the presently claimed methods or the advantages afforded thereby. Accordingly, these references cannot affect the patentability of the present claims.

The rejection of Claims 7-9, 11-13, and 21-24 under 35 U.S.C. §102(b) in view of U.S. Patent No. 6,045,819 (Takebe et al) or WO 95/28853 (Muller et al); the rejection of Claims 7-13 and 21-26 under 35 U.S.C. §102(b) or, in the alternative, under 35 U.S.C. §103(a) in view of Takebe et al or Muller et al in view of U.S. Patent No. 3,655,396 (Goto et al), JP 50-019996 (Kikkoman) and/or Muramatsu et al; and the rejection of Claims 7-26 under 35 U.S.C. §103(a) in view of Takebe et al or Muller et al in view of Goto et al, Kikkoman and/or Muramatsu et al, and further in view of U.S. Patent No. 5,888,561 (Niederberger et al) are respectfully traversed.

Muller et al, cited in the Official Action, does not disclose or suggest using a submerged culture fermenter-type reaction vessel to obtain a fungal culture. In Muller et al, the process for preparing koji is illustrated in the second and third paragraphs on page 9.

According to the disclosed process, the cubes of the bread are inoculated with 1% of a spore suspension of Aspergillus oryzae and fermented on trays in a cabinet until a dense mycelium layer has grown around the cubes (=koji). Thus it is clear that the koji mold prepared in Muller et al is not cultivated in a submerged culture fermenter-type reaction vessel. Accordingly, the present claims are not anticipated by this reference.

Moreover, there is not teaching in Muller et al which would suggest the use of a submerged culture fermenter-type reaction vessel. Thus, this reference cannot make the present claims obvious.

In Takebe et al, an already cooked defatted soybean is inoculated with a koji starter and mixed, and the mixture is placed into a device for preparing koji and fermented, thereby preparing koji (see from column 9, line 55 to column 10, line 2). There is no disclosure of the device used for preparing the koji, and one skilled in the art would not interpret this reference as suggesting the use of a submerged culture fermenter-type reaction vessel, which is usually used for culturing a microorganism ***in an aqueous medium with aeration and agitation***.

The defatted soybean to be hydrolyzed in Takebe et al has a water content as low as 40%, which is a level sufficient only to allow the koji mold to propagate on and into the defatted soybean (see column 8, lines 62-65, and column 10, lines 18-19). In addition, as shown in Fig. 2 in Takebe et al, the temperature of the mixture for the koji preparation dropped every time after agitation of the mixture. This fact means that the mass of the mixture heated by the fermentation heat was cooled down by the contact with air when agitated. Accordingly, from this fact, the skilled artisan would also understand that the cultivation of the koji mold in Takebe et al was not conducted in a submerged culture fermenter-type reaction vessel. For this reason, the present claims are not anticipated by

Takebe et al.

In addition, Takebe et al contains no disclosure which would suggest the use of a submerged culture fermenter-type reaction vessel. Thus, the present claims are not obvious in view of Takebe et al.

Further, since neither Takebe et al nor Muller et al suggest the use of a submerged culture fermenter-type reaction vessel, even the combined teachings of these references cannot make the present claims obvious.

Moreover, the hydrolyzed protein obtained in the present invention has a ratio of reducing sugars of 5% by weight or less based on the total solid content in said hydrolyzed protein. This low level of the ratio of reducing sugars is achieved by the first step hydrolysis at a temperature ranging from 15°C to 39°C with aeration and agitation, during which the koji mold assimilates the saccharides contained in the starting material. The second step hydrolysis at a temperature ranging from 40°C to 60°C is essential for performing a high rate of hydrolysis in a short period of time.

Goto et al, Kikkoman, and Muramatsu et al disclose products with a final amount of reducing sugar of less than 5%. However, none of these references suggests the advantage achieved by shifting the temperature during the hydrolysis. Thus, these references cannot cure the basic deficiencies of Takebe et al and Muller et al.

Accordingly, these rejections are no longer tenable and should be withdrawn.

The rejection of Claims 7-26 under 35 U.S.C. §112, second paragraph, has been obviated by appropriate amendment. As the Examiner will note, Applicants have rewritten the claims such that they are free of the criticisms outlined on pages 2-3 of the Official Action. Accordingly, this rejection is no longer proper and should be withdrawn.

Lastly, Applicants again note that FORM PCT/DO/EO/903 indicates that copies of the

both the International Search Report and the references cited therein have been received by the USPTO. On page 14 of the Official Action, the position is taken that the Examiner need not provide any indication that the references cited in the International Search Report have been considered, because they were not listed on a PTO Form 1449. In support of this position, the Examiner cites 37 C.F.R. §1.98(a)(1), which relates to Information Disclosure Statements.

However, there is no need to file the references cited in an International Search Report in an Information Disclosure Statement. As stated in MPEP §609(II), the:

> examiner ***will consider*** the documents cited in the international search report in a PCT national stage application when the Form PCT/DOE/EO/903 indicates that both the international search report and the copies of the documents are present in the national stage file. In such a case, ***the examiner should consider the documents from the international search report and indicate by a statement in the first Office action that the information has been considered.***
>
> MPEP §609(II), emphasis added.

In this case, all the requirements of MPEP §609(II) have been met: (1) this case is a national stage application; and (2) Form PCT/DOE/EO/903 indicates that both the International Search Report and the copies of the references cited therein have been received by the PTO.

Accordingly, Applicants once again respectfully request that the Examiner comply with the provisions of MPEP §609(II) and indicate that the references cited in the International Search Report have been considered in the next communication from the USPTO.

Applicants submit that the application is now in condition for allowance, and early notification of such action is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Norman F. Oblon
Attorney of Record
Registration No. 24,618

Stephen G. Baxter, Ph.D.
Registration No. 32,884

22850
(703) 413-3000
Fax #: (703)413-2220
SGB/rac

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MARKED-UP COPY OF AMENDMENT FILED HEREWITH

IN THE CLAIMS

Please cancel Claims 9-13 and 16-21, without prejudice toward the further prosecution of these claims in a Continuation and/or Divisional Application.

Please amend the claims as shown in the attached marked-up copy to read as follows:

--7. (Amended) A method for producing hydrolyzed protein by subjecting a vegetable protein material containing saccharides to enzymatic hydrolysis [using a fungal culture in a liquid reaction system], comprising:

(1) conducting cultivation of a koji mold in a submerged culture fermenter-type reaction vessel to obtain a fungal culture;

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(2) [(1)] mixing a dispersion of said vegetable protein material with said fungal culture [wherein said fungal culture is in a form of liquid koji]; and

(3) [(2)] subjecting said vegetable protein material to enzymatic hydrolysis with said fungal culture first at a temperature ranging from 15 °C to 39 °C with aeration and agitation[; and

(3) completing said enzymatic hydrolysis of said vegetable protein material] and then at a temperature ranging from 40 °C to 60 °C,

to obtain said hydrolyzed protein,

wherein a ratio of reducing sugars present in said hydrolyzed protein obtained is 5 % by weight or less based on the total solid content in said hydrolyzed protein.--

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